

## ABSTRACT

--A method of producing a solid electrolyte (3, 13) is disclosed wherein solid electrolyte material is prepared having a composition expressed by a formula:  $(1-x) \text{ZrO}_2 \cdot x\text{Sc}_2\text{O}_3$  (where x is a number equal to or greater than 0.05 and equal to or less than 0.15), and a spark plasma method is carried out to sinter solid electrolyte material, resulting in a solid electrolyte. Such spark plasma method is executed by applying first compression load, equal to or less than 40 MPa, to solid electrolyte material, to sinter the solid electrolyte material to obtain sintered material, which is then cooled by applying second compression load, less than first compression load, to the sintered material, resulting in a solid electrolyte.--